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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,245	06/28/2005	Tamio Endo	040474	2166
23850 7590 10/01/2008 KRATZ, QUINTOS & HANSON, LLP 1420 K Street, N.W. Suite 400 WASHINGTON, DC 20005			EXAMINER MARKOFF, ALEXANDER	
			ART UNIT 1792	PAPER NUMBER
			MAIL DATE 10/01/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/510,245

**Applicant(s)**

ENDO ET AL.

**Examiner**

Alexander Markoff

**Art Unit**

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 September 2007.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-19 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 15 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date 10/15/04.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application.  
6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Amendment*

The amendment to the claims filed on 10/15/2004 does not comply with the requirements of 37 CFR 1.121(c) because the amendment was made without proper markings. Amendments to the claims filed on or after July 30, 2003 must comply with 37 CFR 1.121(c) which states:

(c) *Claims.* Amendments to a claim must be made by rewriting the entire claim with all changes (e.g., additions and deletions) as indicated in this subsection, except when the claim is being canceled. Each amendment document that includes a change to an existing claim, cancellation of an existing claim or addition of a new claim, must include a complete listing of all claims ever presented, including the text of all pending and withdrawn claims, in the application. The claim listing, including the text of the claims, in the amendment document will serve to replace all prior versions of the claims, in the application. In the claim listing, the status of every claim must be indicated after its claim number by using one of the following identifiers in a parenthetical expression: (Original), (Currently amended), (Canceled), (Withdrawn), (Previously presented), (New), and (Not entered).

(1) *Claim listing.* All of the claims presented in a claim listing shall be presented in ascending numerical order. Consecutive claims having the same status of "canceled" or "not entered" may be aggregated into one statement (e.g., Claims 1–5 (canceled)). The claim listing shall commence on a separate sheet of the amendment document and the sheet(s) that contain the text of any part of the claims shall not contain any other part of the amendment.

(2) *When claim text with markings is required.* All claims being currently amended in an amendment paper shall be presented in the claim listing, indicate a status of "currently amended," and be submitted with markings to indicate the changes that have been made relative to the immediate prior version of the claims. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double brackets if strike-through cannot be easily perceived. Only claims having the status of "currently amended," or "withdrawn" if also being amended, shall include markings. If a withdrawn claim is currently amended, its status in the claim listing may be identified as "withdrawn—currently amended."

(3) *When claim text in clean version is required.* The text of all pending claims not being currently amended shall be presented in the claim listing in clean

version, *i.e.*, without any markings in the presentation of text. The presentation of a clean version of any claim having the status of "original," "withdrawn" or "previously presented" will constitute an assertion that it has not been changed relative to the immediate prior version, except to omit markings that may have been present in the immediate prior version of the claims of the status of "withdrawn" or "previously presented." Any claim added by amendment must be indicated with the status of "new" and presented in clean version, *i.e.*, without any underlining.

(4) *When claim text shall not be presented; canceling a claim.*

(i) No claim text shall be presented for any claim in the claim listing with the status of "canceled" or "not entered."

(ii) Cancellation of a claim shall be effected by an instruction to cancel a particular claim number. Identifying the status of a claim in the claim listing as "canceled" will constitute an instruction to cancel the claim.

(5) *Reinstatement of previously canceled claim.* A claim which was previously canceled may be reinstated only by adding the claim as a "new" claim with a new claim number.

The applicants deleted claims 15 and 17 and renumbered and/or changed the dependency of claims 16 and 18-21, leaving 19 claims for examination, with claims 16 and 18-21 renumbered as 15-19.

Since it is not clear whether this amendment was made during the prosecution of the US case or the international application the referenced amendment is considered and the claims are interpreted as presented by this amendment.

However, the applicants are required to comply with the requirements of 37 CFR 1.121 in further communications.

#### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claims 1-12:

The claims are indefinite because it is not clear what is referenced by "freely" in "freely adjusting the treatment space".

The claims are indefinite because it is not clear what structure is required by the recitation of the clause introduced by "wherein" in claim 1.

Claim 4 is indefinite because the term "low pressure" is a relative term lacking proper comparative basis.

Claims 5-8 are indefinite because the terms "close" and "approximately" in claim 5 are relative terms lacking proper comparative basis.

Claims 9-11 are indefinite because the term "the surface of the substrate", "the upper portion surface", "the inside" and "the resist surface". It is also not clear whether or not the referenced "the surface of the substrate" and "the resist surface on the substrate" are the same. These claims are further indefinite because it is not clear what structure is required by the recitation by the recited functioning of the apparatus. Further, it is not clear what is referenced by "as liquid drops".

As to claims 13-15, 17(13) and 19(13):

The claims are indefinite because the terms "close" and "approximately" in claim 13 are relative terms lacking proper comparative basis.

The claims are further indefinite because the term "the distance" in claim 13 lacks proper antecedent basis.

Claim 14 is indefinite because the terms "the distance" and "the surface of the substrate" lack proper antecedent basis.

As to claims: 16, 17(16), 18 and 19(16):

The claims are indefinite because it is not clear how the liquid drops can form condensation. Liquid is a condensed form. "Condensation" is a process of changing from a gaseous to a liquid state or a liquid formed by such process. How can the liquid drops form "condensation"? What is required?

Claims 18 and 19(16) are indefinite because the term "the liquid film" lacks proper antecedent basis.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1 - 5, 9, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 63-033824.

JP 63-303824 teaches an apparatus as claimed. See entire document, especially Figure 2 and the related description.

5. Claims 13, 15-19 rejected under 35 U.S.C. 102(e) as being anticipated by Miki et al (US Patent No 6,610,168).

Miki et al teach a method for resins removal as claimed.

The method comprises spraying a liquid water and/or ozone water and/or hydrogen peroxide and/or steam and/or ozone combined with application of UV radiation. See entire document, especially Figures 3, 4, 6 and the related description, column 1, line 38 - column 7, line 23, column 11, line 30 - column 17, line 8.

It is noted that the step of distance adjustment is readable on step of placing the substrate on the pins of the spinning mechanism.

This is because the claims do not require any specific movement or distance.

#### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 6, 7, 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 63-033824 in view of Miki et al and Hirae et al (US 2001/0001392).

JP 63-033824 teaches the claimed apparatus except for the distance claimed and the ozone/ozone water/hydrogen peroxide water.

Miki et al and Hirae et al teach that it was known to conduct photoresist removal in the apparatuses comprising liquid and gas spray means combined with UV irradiation means.



Since the apparatus of JP 63-033824 is such cleaning apparatus, it would have been obvious to an ordinary artisan at the time the invention was made to provide in the apparatus of JP 63-033824 means to provide the recited chemicals in order to adapt the apparatus to conduct additional processes, such as photoresist removal with reasonable expectation of adequate results.

As to specific distance claimed:

First, JP 63-033824 does not limit the apparatus to any specific minimal distance between surface (6) and the surface of the substrate. Thereby it is reasonably believed that the apparatus of the JP document is capable of providing any desired distance.

Second, both Miki et al and Hirae et al teach the distance between the substrate and the irradiation means as a result effective variable. It would have been obvious to an ordinary artisan at the time the invention was made to find the optimum distance between the substrate and the irradiation source depending from the process conducted and the treatment chemicals used.

10. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 63-033284 in view of any one of Hayashi et al (US Patent NO 4,783,006) and JP 2003-064486.

JP 63-033284 teaches the claimed apparatus except for the ceramic plate. Hayashi et al and JP 2003-064486 teach that it was known to spray treatment liquids, including etching liquids to the substrates through ceramic plates to improve uniformity of the treatment.

It would have been obvious to an ordinary artisan at the time the invention was made to provide ceramic plate in the apparatus of JP 63-033284 in order to improve the uniformity of the liquid delivery.

11. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miki et al in view of Hirae et al, Mizosaki et al (US Patent NO 5,998,766), Hiramoto et al (US Patent NO 5,510,158) and Suzuki et al (US Patent NO 5,667,113).

Miki et al teaches the claimed method except for the specifically claimed distance between the substrate and the chamber surface.

However, Miki et al teach that the distance between the radiation source and the surface of the substrate is a result effective variable. See at least column 15, lines 2-54.

All secondary documents teach that the distance between the irradiation source and the surface of the substrate is result effective variable in the process of removal of phoresists with UV radiation and teach optimizing the referenced distance by moving the substrate or radiation source or both of them to optimize the process.

It would have been obvious to an ordinary artisan at the time the invention was to optimize the distance between the substrate and the irradiation source (which is mounted on the upper wall of the chamber) and to find optimum distance by routine experimentation depending from the type of source and treatment chemicals used.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Markoff whose telephone number is 571-272-1304. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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